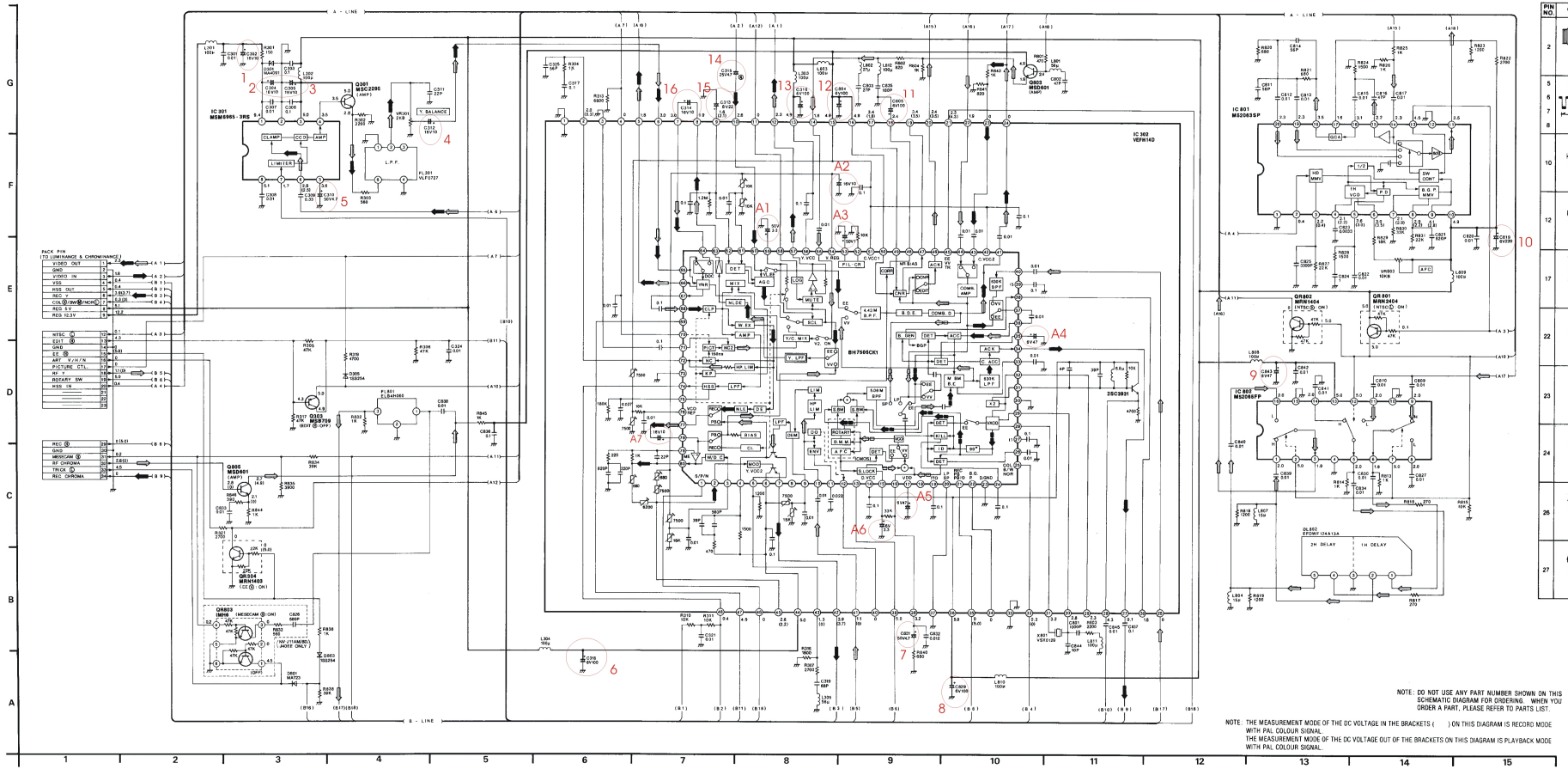
■ National NV-J11 VCR Repair – No Color / Gray Picture Fixed

3-9. LUMINANCE & CHROMINANCE PACK SCHEMATIC DIAGRAM

MAIN SIGNAL PATH IN REC MODE
MAIN SIGNAL PATH IN PLAYBACK MODE
5.06MHz PHASE ROTATIONAL SIGNAL IN REC MODE
5.06MHz PHASE ROTATIONAL SIGNAL IN PLAYBACK MODE



NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE IN THE BRACKETS ( ) ON THIS DIAGRAM IS RECORD MODE WITH PAL COLOUR SIGNAL.
THE MEASUREMENT MODE OF THE DC VOLTAGE OUT OF THE BRACKETS ON THIS DIAGRAM IS PLAYBACK MODE WITH PAL COLOUR SIGNAL.

IC302 (VEFH14D)

PIN NO.	WAVEFORM	PIN NO.	WAVEFORM
2	0.3Vp-p (P.B)	28	0.5Vp-p (REC/P.B)
5		29	
6	0.5Vp-p (REC/P.B)	30	0.2Vp-p (REC/P.B)
7			
8			
10	1.0Vp-p (REC/P.B)	31	0.2Vp-p (REC/P.B)
12	2.2Vp-p (REC/P.B)	39	5.0Vp-p (REC/P.B)
17	0.2Vp-p (REC)	40	0.5Vp-p (REC/P.B)
22	0.14Vp-p (REC/P.B)	41	0.25Vp-p (P.B)
23	0.4Vp-p (REC)	42	0.8Vp-p (REC)
24	0.9Vp-p (REC/P.B)	43	0.36Vp-p (P.B)
26	0.5Vp-p (REC/P.B)	48	4.8Vp-p (REC/P.B)
27	0.7Vp-p (REC)		

LUMINANCE & CHROMINANCE PACK PIN

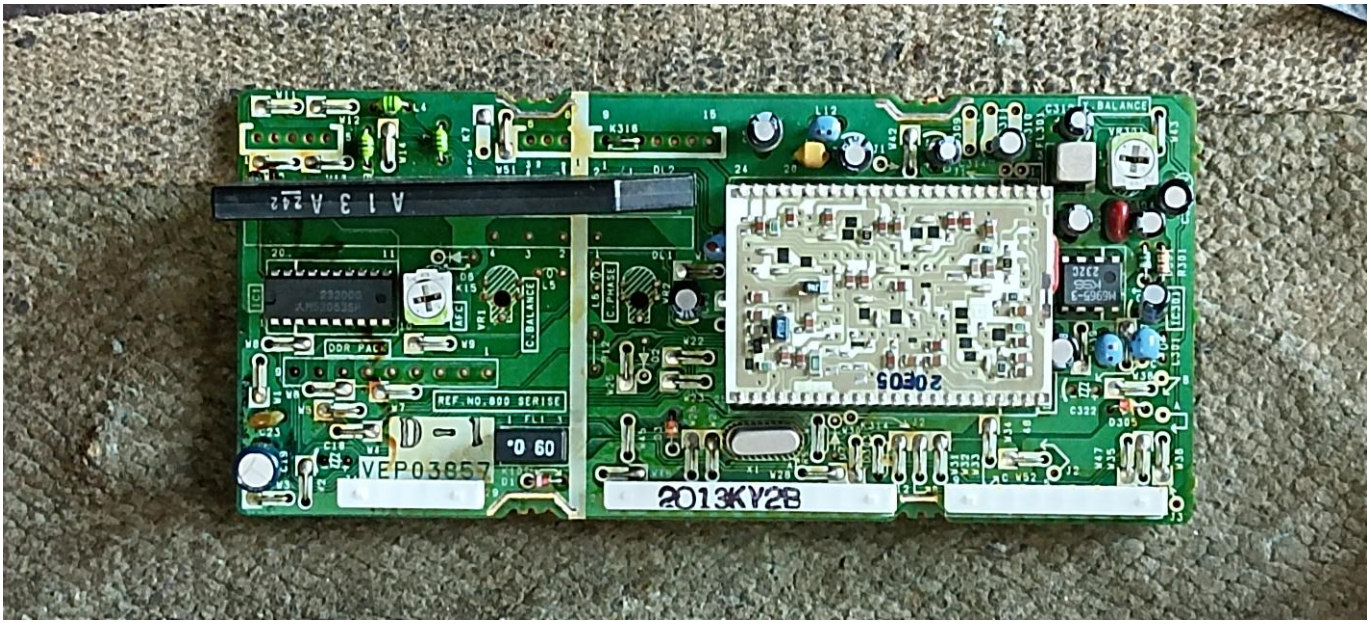
PIN NO.	WAVEFORM
1	2.2Vp-p (REC/P.B)
3	1.0Vp-p (REC/P.B)
4	2.0Vp-p (REC/P.B)
5	4.8Vp-p (REC/P.B)
6	0.8Vp-p (REC)
18	0.36Vp-p (P.B)
19	5.2Vp-p (REC/P.B)
20	4.8Vp-p (REC/P.B)
32	0.3Vp-p (P.B)
34	0.84Vp-p (REC)

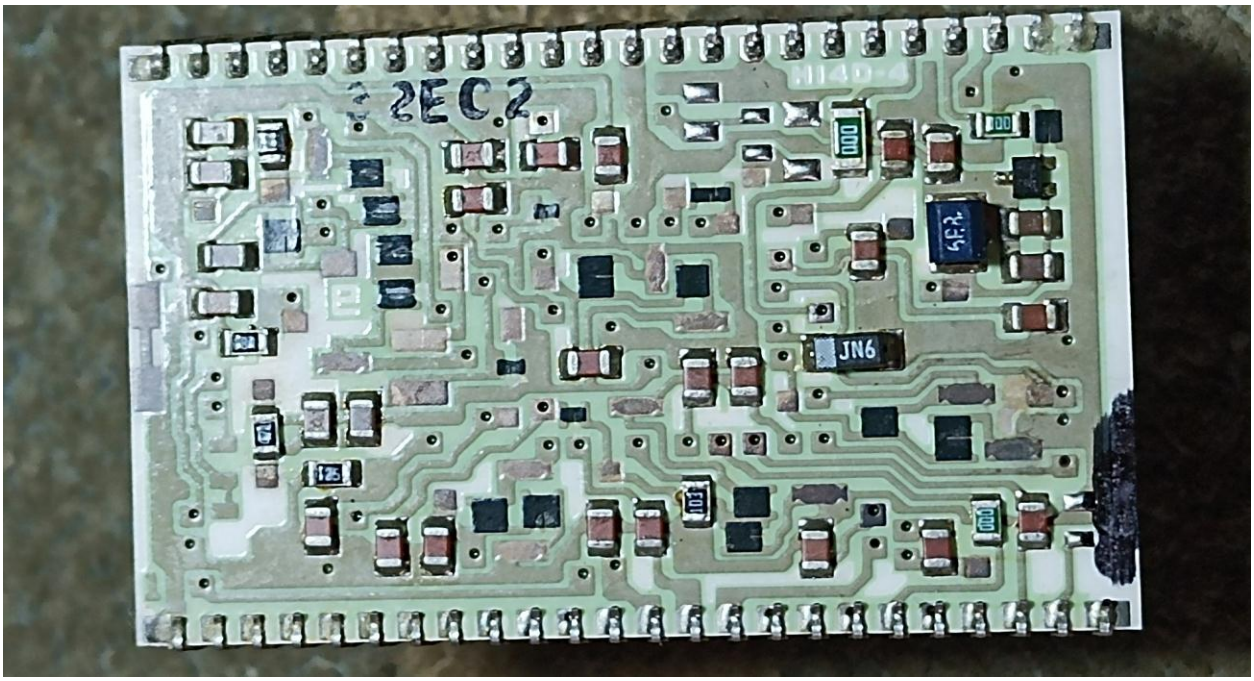
Symptoms

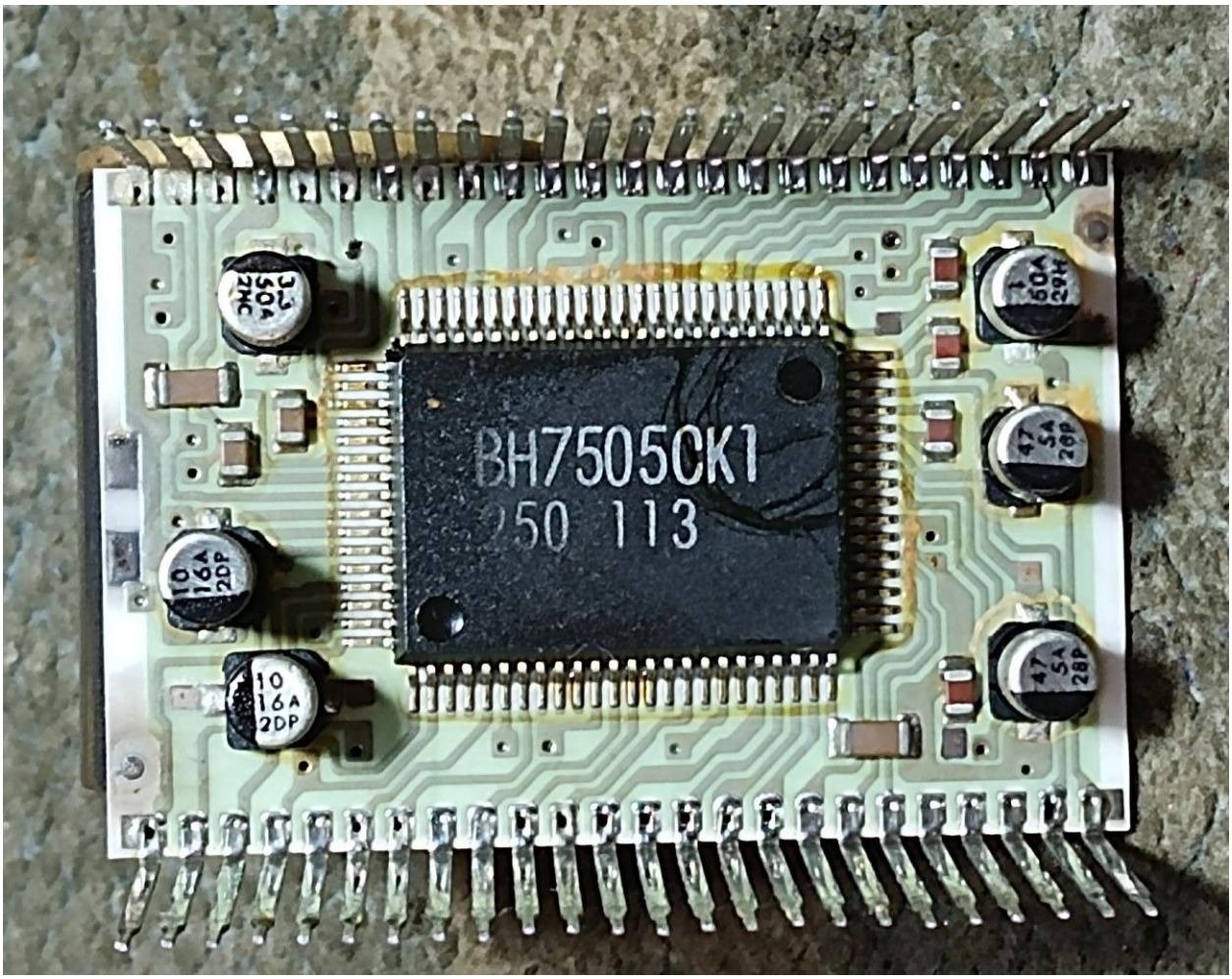
-VCR played tapes picture start with colors but loose Colors after start up
-Brightness would drift and picture looked washed out.
-**AV input signal** was not passing correctly to video out.

Diagnosis

-The fault was traced to the **luminance & chrominance board** and the **sub-board with BH7505CK1 video processor IC**




JN6

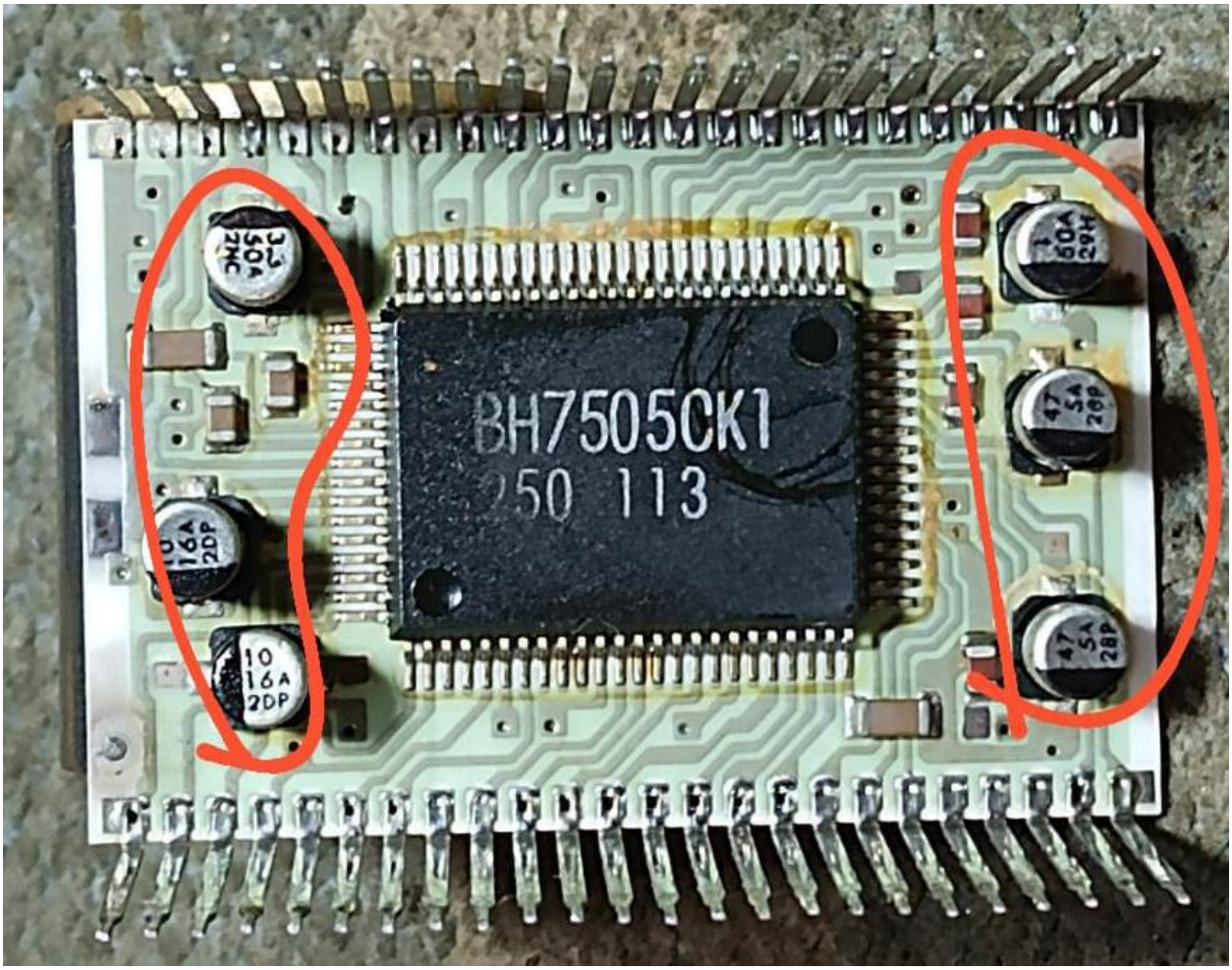

BH7505CK1
250 113

REPAIRS

-Checked electrolytic capacitors with a multimeter:

- 47µF caps showed **no capacitance**.
- 10µF caps measured only ~4.5µF.
- 1µF cap showed ~0.68µF.
- 3.3µF cap measured ~2.7µF.

-This confirmed that the capacitors were **dried out / high ESR** and could not filter or couple video signals correctly.

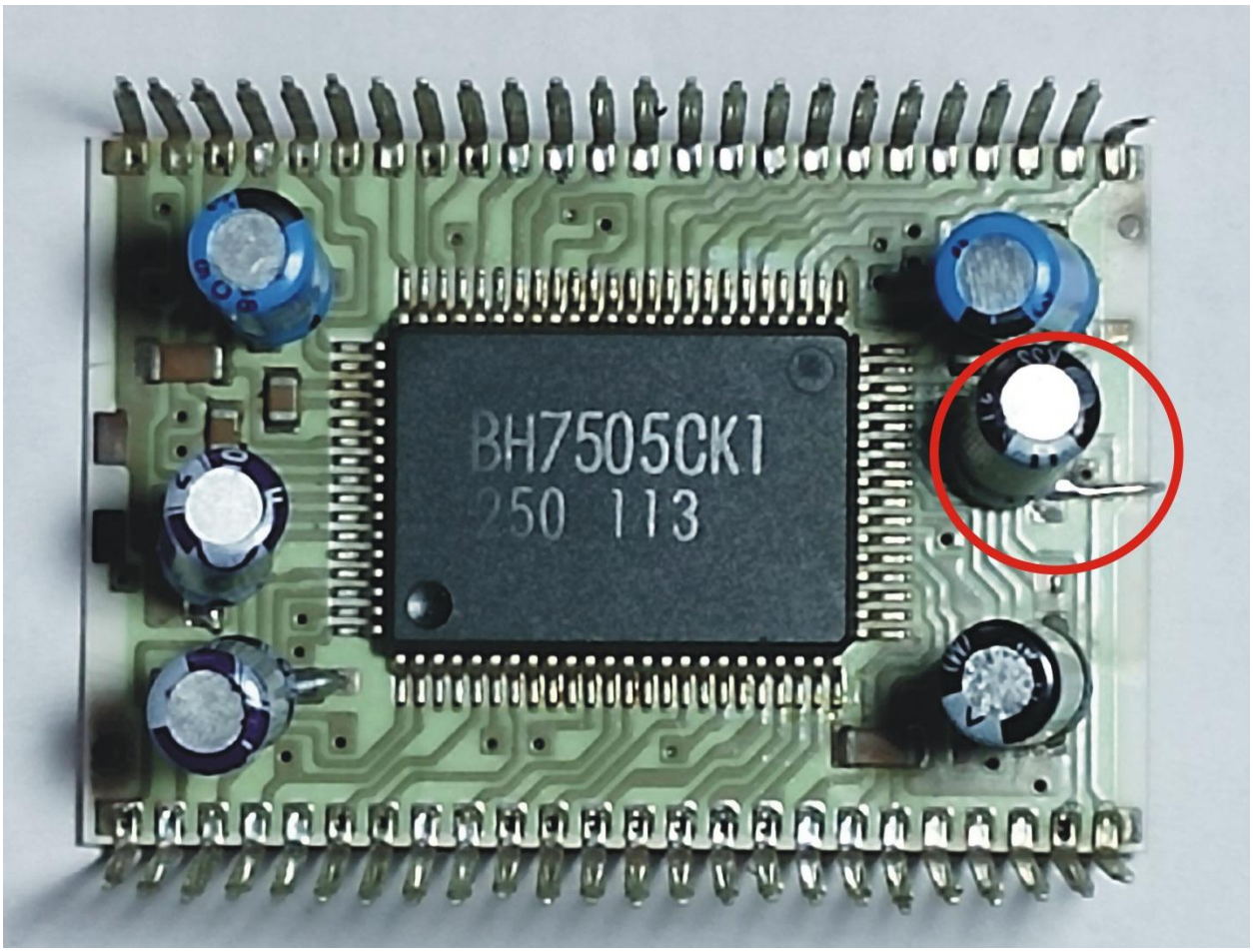


- -Replaced **all electrolytic capacitors with SMD caps or through hole capacitors near the BH7505CK1 IC.** Please look for size of **through-hole capacitors** before buying:

- 2 × 47µF
- 2 × 10µF
- 1 × 1µF
- 1 × 3.3µF

-Used good quality **105°C electrolytic capacitors**

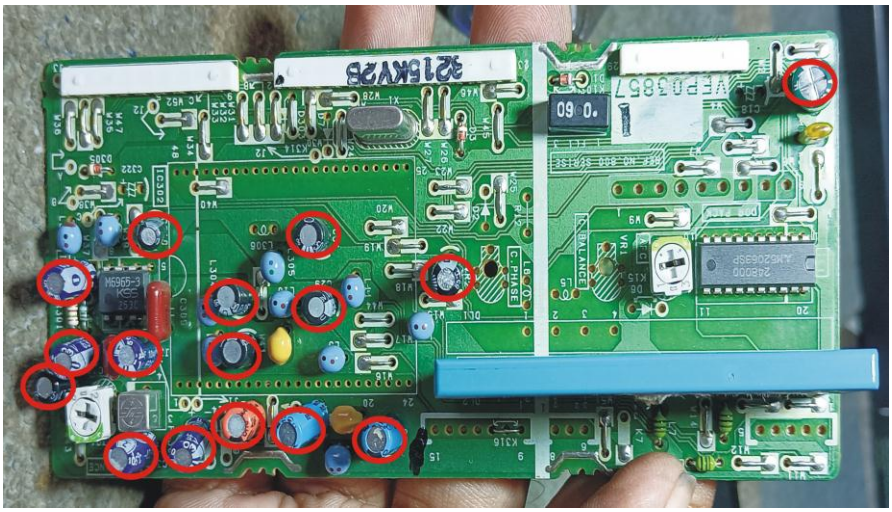
Be very careful when removing these SMD electrolytic caps from board otherwise u will lose soldering pads .be gentle with soldering pads. I lost one pad as shown in red circle



Repair

-Also replaced all capacitors on the **sub-board** connected to this circuit.
-Used good quality **105°C electrolytic capacitors**

- 5 x 10uf/16v
- 1 X 4.7uf/50v
- 1 x 22uf/6v
- 1 x 4.7uf/25v (BIOPOLAR)
- 5 x 100uf/6v
- 1 x 220uf/6v
- 1 x 4.7uf/50v
- 1 x 47uf/6V

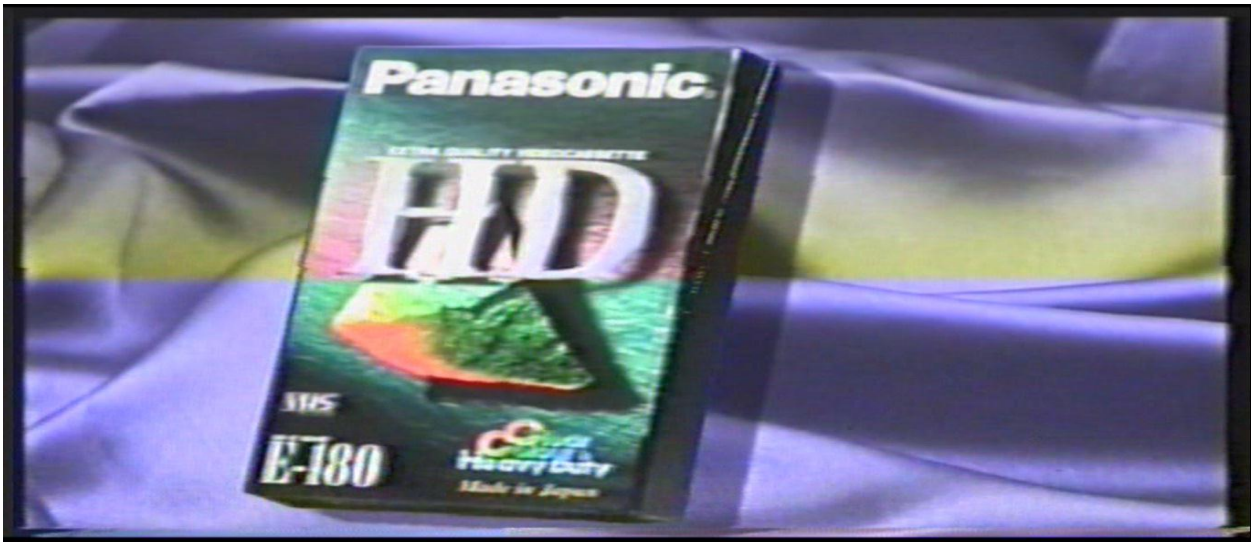


Result

-VCR now plays tapes in **full color with stable brightness**.
-**AV input works perfectly** (signal passes through correctly).
-The repair completely restored the machine to full working condition

Before

After



Tips for Others

-If your **National / Panasonic VCR (with BH7505CK1 chip)** shows gray picture or no color, first suspect the **small electrolytic capacitors** around the video processor.
-Even if a capacitor shows some value on a multimeter, ESR may still be bad → **replace all low-value caps** (1µF–47µF).